WHAT IS CLAIMED IS:

1. A vibration damping actuator comprising:

a cup-shaped housing having a guide hole disposed extending therethrough on a center axis thereof;

an output member disposed spaced apart from an opening end of the housing;

a guide rod disposed on the output member and positioned inserted into the guide hole;

a coil member provided to one of the housing and the output member;

an armature disposed on an other of the housing and the output member, the armature being adapted to exert actuating force on the output member by means of application of electric current to the coil member;

an annular fixing member arranged about the output member with a spacing therebetween;

a support rubber plate disposed in the spacing between the annular fixing member and the output member for elastically connecting the output member to the annular fixing member, an outside peripheral edge of the fixing member being caulked to an rim of an opening of the housing, whereby the output member is supported in an elastically displaceable manner by means of the housing; and

a positioning projection formed at an inside peripheral edge of the fixing member by projecting the inside peripheral edge of the fixing member in cylindrical configuration in an axial direction towards an inside of the housing with a projected distal end thereof being projected in flange-like configuration toward an outside,

the positioning projection provided for positioning the fixing member relatively in an axis-perpendicular direction with respect to an inner circumferential surface of the housing at a location situated inward

by a predetermined distance from the opening of the housing.

2. A vibration damping actuator according to claim 1, further comprising: a compression rubber bonded on the fixing member, and compressed between the fixing member and the housing in the axial direction.

3. A vibration damping actuator according to claim 1, wherein the compression rubber abuts the housing in the axis-perpendicular direction at a location further inward from the opening of the housing so that clamping force is exerted on the compression rubber in the axial direction and the axis-perpendicular direction between the fixing member and the housing.

4. A vibration damping actuator according to claim 1, wherein a housing flange is formed on the rim of the opening of the housing, and an outside peripheral edge of the fixing member is placed over the housing flange, with a overlapped portion of the flange portion and the fixing member being caulked by means of a caulking member which is separate from both the housing flange and the fixing member.

5. An active vibration damping mount comprising:

a first mounting member fixable to one of two members that are mutually connected to make up a vibration transmission system;

a second mounting member fixable to an other one of the two members;

a rubber elastic body connecting the first and second mounting members and partially defining a pressure receiving chamber which has a non-compressible fluid sealed therein;

an oscillating member partially defining the pressure receiving

chamber; and

an actuator for exerting oscillation force on the oscillating member so that oscillation of the oscillating member is actuated by means of the actuator in order to control pressure in the pressure receiving chamber,

wherein the actuator comprises a vibration damping actuator according to claim 1, and the housing of the vibration damping actuator is fixed to the second mounting member, while the oscillating member constituted by means of the output member of the vibration damping actuator.

6. An active vibration damping mount according to claim 5, further comprising:

a large-diameter caulking sleeve portion integrally formed at an other opening of the second mounting member and providing a shoulder portion;

a lid member including an annular fixing member bonded to an outside peripheral portion of a support rubber plate having an oscillating plate bonded to a central portion thereof, the lid member being disposed at an other opening of the second mounting member, and the fixing member is press-fitted into the caulking sleeve portion, superimposed against the shoulder portion, and fixedly caulked, thereby providing a fluid-tight closure to the other opening of the second mounting member and forming between the rubber elastic body and the lid member a fluid chamber having the non-compressible fluid sealed therein;

a cylindrical base bracket comprising a bracket flange at one opening thereof, the bracket flange being superimposed against the fixing member from an outside of the one opening onto the fixing member, and caulked therewith by means of the caulking sleeve portion, thereby attaching the base bracket to the second mounting member; and

an annular press-fit portion formed by bending an outside peripheral

edge of the fixing member towards the base bracket side, with a projecting distal end face thereof being superimposed directly against the outside peripheral face of the bracket flange in the axial direction,

wherein the actuator is disposed to an opposite side of the oscillating plate from the fluid chamber, with the housing of the actuator extending out in a cylindrical configuration toward the fixing member and the housing flange disposed at the opening thereof supported, with caulking force exerted thereon via a compression rubber, while clamped between the fixing member and the bracket flange of the base bracket in the portion located on the inner peripheral side of the annular press-fit portion.

7. An active vibration damping mount according to claim 6, further comprising: an elastic body outer member bonded by vulcanization to an outside peripheral portion of the rubber elastic body, wherein an outside peripheral edge portion of the elastic body outer member is interposed between the shoulder portion of the second mounting member and the fixing member, and caulked by means of the caulking sleeve portion, thereby fastening the outside peripheral edge portion of the rubber elastic body to the second mounting member.

8. An active vibration damping mount according to claim 6, further comprising:

a flexible rubber layer disposed straddling the first mounting member and the second mounting member to the outside of the rubber elastic body;

an equilibrium chamber of variable volume partially defined by flexible rubber layer and having the non-compressible fluid sealed therein, the equilibrium chamber being disposed on an opposite side of the rubber elastic body from the fluid chamber; and

an orifice passage permitting a fluid communication between the fluid chamber and the equilibrium chamber.

9. An active vibration damping mount according to claim 8, further comprising a partition member of smaller diameter than the shoulder portion in the second fixing member, the partition member being disposed accommodated within the fluid chamber; with an outside peripheral edge portion of the partition member being sandwiched between the elastic body outer member and the fixing member and subjected to caulking force via a compression rubber to clamp and support the partition member, thereby partitioning the fluid chamber into a pressure receiving chamber on one side of the partition member partially defined by the rubber elastic body and adapted to give rise to pressure fluctuations during vibration input, and an oscillating chamber on an other side of the partition member partially defined by the oscillating plate and adapted to be pressure-controlled by means of oscillatory actuation of the oscillating plate, the pressure receiving chamber and the oscillating chamber being held in fluid communication via a pressure transmission passage.

10. An active vibration damping mount according to claim 6, wherein the compression rubber is bonded on and covering a flange-portion-side face of the fixing member at a location a predetermined distance away inwardly from the annular press-fit portion on a face at the flange portion side of the actuator with respect to the fixing member.

11. An active vibration damping mount according to claim 5, wherein the first mounting member is disposed spaced apart from one opening of the second mounting member of generally cylindrical configuration, with the first mounting member and the second mounting member being connected by means of the rubber elastic body to provide

fluid-tight closure to the one opening of the second mounting member, while a shoulder portion at an other opening of the second mounting member is disposed to integrally form a caulking sleeve portion, the mount further comprising:

a lid member including an annular fixing member that is press-fit at an outside peripheral edge thereof into the caulking sleeve portion, and superimposed and caulked against the shoulder portion to provide fluid-tight closure to the other opening of the second mounting member, thereby forming between the rubber elastic body and the lid member a fluid chamber in which a non-compressible fluid is sealed;

a cylindrical base bracket disposed at one opening thereof with a bracket flange portion thereof being superimposed against the fixing member from the outside of the other opening of the second mounting member and, together with the fixing member, caulked by means of the caulking sleeve portion to attach the second mounting member; and

a stopper fixing projection disposed projecting to an outer peripheral side in the second mounting member, the stopper fixing projection having a stop member bolted thereto for limiting an amount of relative displacement of the first mounting member and the second mounting member,

wherein the outside peripheral edge portion of the fixing member is bent towards a base bracket side to form an annular press-fit portion, and a projecting distal end face of the annular press-fit portion is superimposed directly in the axial direction against an outside peripheral edge portion of the bracket flange, while an outer peripheral corner of one of opposite face of the bracket flange remote from the fixing member is subjected to chamfering around an entire circumference in the circumferential direction, over a width dimension smaller than a thickness dimension of the annular press-fit portion.

12. An active vibration damping mount according to claim 11,

wherein the lid member has a structure in which the fixing member bonded by vulcanization to an outside peripheral edge portion of a readily deformable, flexible rubber layer, and in the fluid chamber is housed a partition member spreading in a generally axis-perpendicular direction, with an outside peripheral edge portion of the partition member caulked to the second fixing member by means of the caulking sleeve portion, thereby forming to one side of the partition member the pressure receiving chamber, and forming to the other side of the partition member an equilibrium chamber partially defined by the flexible rubber layer and designed to readily allow change in volume, the partition member being utilized to form an orifice passage through which the pressure receiving chamber and the equilibrium chamber are held in fluid communication with each other.

13. An active vibration damping mount according to claim 11, wherein the lid member includes an oscillating plate elastically connected to the fixing member by a support rubber plate, and the actuator that actuates oscillation of the oscillating plate is arranged on an opposite side of the lid member from the fluid chamber, with a cylindrical portion of the housing of the actuator extending towards a lid member side and having a housing flange formed on the opening rim thereof, the housing flange being arranged to an inner peripheral side of the annular press-fit portion of the fixing member, and supported in the axial direction by being clamped via a compression rubber, between the fixing member and the bracket flange of the base bracket.

14. An active vibration damping mount according to claim 13, wherein a partition member extending in the generally axis-perpendicular direction is housed in the fluid chamber, with an outside peripheral edge portion of the partition member caulked to the second fixing member by means of the caulking sleeve portion, thereby forming to one side of the

partition member the pressure receiving chamber, and forming to an other side of the partition member an oscillating chamber that is pressure-controlled by means of oscillating action of the oscillating plate, the partition member being utilized to form a pressure transmission passage whereby pressure in the oscillating chamber is exerted on the pressure receiving chamber.

15. An active vibration damping mount according to claim 11, further comprising: an elastic body outer member bonded by vulcanization to an outer peripheral portion of the rubber elastic body, with an outside peripheral edge portion of the elastic body outer member superimposed against the shoulder portion of the second mounting member, and with the partition member and the fixing member sequentially superimposed against the elastic body outer member and caulked thereto by means of the caulking sleeve portion, for supporting an outside peripheral edge of the partition member between the elastic body outer member and the fixing member, at a location spaced apart inwardly in a diametrical direction from the shoulder portion of the second mounting member.

16. An active vibration damping mount according to claim 5, further comprising:

an elastic body central member bonded to a center portion of the rubber elastic body;

an elastic body outer member bonded to an outer peripheral portion of the rubber elastic body;

a rubber-layer central member bonded to a center of a flexible rubber layer disposed so as to cover an exterior of the rubber elastic body; and

a rubber layer outer member bonded to an outer peripheral portion of the flexible rubber layer,

wherein the elastic body central member and the rubber-layer central member are fixed to each other to constitute the first mounting member, while the elastic body outer member and the rubber layer outer member are fixed to each other to constitute the second mounting member, an equilibrium chamber having non-compressible fluid sealed therein and partially defined by the flexible rubber layer is formed on an opposite side of the rubber elastic body from the pressure receiving chamber, and an orifice passage is formed for permitting fluid communication between the pressure receiving chamber and the equilibrium chamber,

wherein an annular support portion is formed by extending the rubber layer outer member to an outer peripheral side thereof, a rebound stop member of gate shape extending across an outside of the first mounting member is laminated and bonded at both basal ends thereof onto the annular support portion by means of a fastening member,

wherein a rebound stop rubber is bonded to a face of the rebound stop member opposed to the first mounting member, thereby constituting a rebound stop mechanism for cushion-wise limitation of an extent of elastic deformation of the rubber elastic body in the rebound direction, by means of direct abutment of the first mounting member against the rebound stop rubber, and

wherein a bound stop member is superimpose on the annular support portion, and is fastened sandwiched between at least one basal end portion of the rebound stop member and the annular support portion, by means of the fastening member, while a bound stop rubber is bonded to the surface of the bound stop member to thereby constitute a bound stop mechanism for cushion-wise limitation of an extent of elastic deformation of the rubber elastic body in a bound direction, by means of direct or indirect abutment of the first mounting member against the bound stop rubber.

17. An active vibration damping mount according to claim 16,

further comprising: a temporary fixing member for temporarily fixing the bound stop member to the annular support portion, in an absence of fixing force by the fastening bolt.

18. An active vibration damping mount according to claim 16, wherein the bound stop member is formed to have a length equal to or greater than a half of a circumference of the annular support portion, and the bound stop member is fixed to the annular support portion by means of the fastening members fixing both base end portions of the rebound stop member.

19. An active vibration damping mount according to claim 16, wherein the rubber layer outer member has a generally cylindrical shape, and is externally fitted onto the elastic body outer member, and the orifice passage is formed so as to extend in a circumferential direction between the elastic body outer member and the rubber layer outer member, while the annular support portion is integrally formed at one axial opening of the rubber layer outer member, and a closure member is superimposed onto an other axial opening, and caulked at an outside peripheral edge thereof, together with an outside peripheral edge of the elastic body outer member, to the other opening of the rubber layer outer member so as to close the opening of the elastic body outer member in fluid-tight fashion.

20. An active vibration damper adapted to be installed on a member whose vibration to be damped, in order to exert oscillating force on the member for producing active vibration damping action, comprising: a vibration damping actuator constructed according to claim 1; a mount portion for fixation to the vibration-damper member disposed in one of the housing and the output member in the vibration damping actuator; and a mass portion disposed on an other of the housing and the output.